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MULTIMEDIA MESSAGE CENTER AND TELECOMMUNICATION DEVICE FOR  
ACCESSING STORED MULTIMEDIA MESSAGES

## Description

Method and multimedia message center for delivering a multimedia message to a telecommunication device configured as a multimedia message sink and telecommunication device for accessing multimedia messages stored in at least one storage unit of a multimedia message service center.

The present invention relates to a method for delivering a multimedia message to a telecommunication device configured as a multimedia message sink according to the preamble of Claim 1, a multimedia message center for delivering a multimedia message to a telecommunication device configured as a multimedia message sink according to the preamble of Claim 15 and a telecommunication device for accessing multimedia messages stored in at least one storage unit of a multimedia message service center according to the preamble of Claim 26.

The transmission (sending and receiving) of service messages to a telecommunication device - for example a mobile telephone, a cordless telephone comprising a base station and at least one mobile unit, a fixed network telephone, a fax machine, a personal computer, etc. - and conversely from the telecommunication device is a communication service which is classified in relation to the information content transmitted with the messages, e.g. texts, multimedia content such as audio/video data (ring tones, screen savers), graphics, programs, etc., and which was first launched in the mobile radio area, and because of its high level of acceptance there has gradually become established in the fixed network area. Of

the wide range of services offered in the mobile radio network - such as the Short Message (Messaging) Service (SMS), the Enhanced Message (Messaging) Service (EMS), the Multimedia Message (Messaging) Service (MMS), Instant Messaging, Over The Air Activation (OTA), email, etc. - the trend in the fixed network as in the mobile radio area appears to be that SMS and MMS communication services will play a more major role. While the SMS service is already standardized both for the mobile radio area and for the fixed network area (for GSM: ETSI TS 100 942 V7.0.0, Release 1998; for ISDN/PSTN: ETSI ES 201 912 V1.1.1, Release 01/2002), in the case of the MMS service the same only applies to the mobile radio area (see: 3GPP TS 22.140 V4.y.z; stage 1 and 2; release 4), while standardization activities are still ongoing at present in the fixed network area (see: ETSI DES/AT-030023 V0.1.0, 11/2003).

The SMS service in the fixed and mobile networks is a point-to-point service, characterized by a pure push functionality - i.e. the content of the short message (SM), the length of which is maximum 160 bytes, is send by the short message service center (SMSC) to the telecommunication device and generally comprises text data - establishment of the connection being prompted by the service center. While the SMS service in the mobile radio area operates in a connectionless manner between the telecommunication device and the short message service center, in that the short message is transmitted via a signaling channel without a traffic channel connection being set up, in the fixed network the SMS service operates in a connection-oriented manner, in that a traffic channel connection is established between the telecommunication device and the short message service center and the short message is transmitted via this using the service feature Calling Line Identification (CLI), referred to

as Calling Line Identification Presentation (CLIP), by means of FSK and/or DTMF signaling (Frequency Shift Keying or Dual Tone Multiple Frequency).

In the case of the MMS service, which operates in the mobile radio network like the SMS service in a connectionless manner via a WAP transport path (use of the Wireless Application Protocol), in the fixed network another mechanism is brought to bear:

When a multimedia message (MM) is sent, the size of which is in principle unlimited but is currently restricted to approx. 100 kBytes, and which could contain text, multimedia content such as audio/video data (ring tones, screen savers), graphics, programs, etc., in short text, audio and/or video data, a notification message known as the MMS notification is first sent to the telecommunication device, again in a connection-oriented manner, informing the telecommunication device that a multimedia message is present at the multimedia message service center (MMSC). This takes place by means of a push service, e.g. the SMS service. It is then necessary, unlike when receiving a short message, to initiate the setting up of a further connection from the telecommunication device to the multimedia message service center to receive the content of the multimedia message.

FIGURES 1 and 2 show this situation - the transmission of multimedia messages MM in the fixed network from a sender (send device) to a addressee (receive device), each of the devices generally only being registered with a single multimedia message service center MMSC, according to the prior art.

FIGURE 1 shows the transmission of multimedia messages in the fixed network from a sender (send device) to an addressee (receive device), when both devices are registered with the same multimedia message service center.

FIGURE 2 shows the transmission of multimedia messages in the fixed network from a sender (send device) to an addressee (receive device), when both devices are registered with different multimedia message service centers.

FIGURE 1 shows the transmission of a multimedia message (MM) MMN in the fixed network FN from a send telecommunication device STKG to a receive telecommunication device ETKG, both devices being registered with one and the same multimedia message service center (MMSC) MMNDZ, which is assigned to the fixed network FN. "Assigned" here means that the multimedia message service center MMNDZ is either a component of the fixed network FN or is arranged outside the fixed network FN. The send telecommunication device STKG or receive telecommunication device ETKG is registered with the multimedia message service center MMNDZ by programming a receive and send number for the service center into the respective device. This is either done by preconfiguring the respective telecommunication device in the factory or by manual configuration by the user of the device or by a specific configuration message, which is transmitted once during installation of the MMS service, e.g. via the SMS service from the multimedia message service center MMNDZ to the send telecommunication device STKG or the receive telecommunication device ETKG and is loaded dynamically with the data required for the installation of the MMS service.

Transmission of the multimedia message MMN starts with the send telecommunication device STKG sending the multimedia message MMN intended for the receive telecommunication device ETKG via the fixed network FN to the multimedia message service center MMNDZ. In order to inform the receive telecommunication device ETKG that the multimedia message MMN intended for the receive telecommunication device ETKG has arrived in the multimedia message service center MMNDZ, the multimedia message service center MMNDZ sends a notification message MN to a short message service center (SMSC) KNDZ that is assigned to the fixed network FN as the carrier of information for the receive telecommunication device like the multimedia message service center MMNDZ. The short message service center KNDZ inserts the receive notification message MN into a short message (SM) KN and sends this short message KN with the incorporated notification message MN in the known manner via the fixed network FN to the receive telecommunication device ETKG. However this requires the receive telecommunication device ETKG to be registered with the short message service center KNDZ. Registration with the short message service center KNDZ takes place in the same way as registration with the multimedia message service center MMNDZ.

On receipt of the notification message MN the receive telecommunication device ETKG sets up a temporary telecommunication connection via the fixed network FN or a temporary Internet connection according to the TCP/IP protocol to the multimedia message service center MMNDZ, with which it is registered as mentioned above, in order to collect the multimedia message MMN stored there.

The fact that the receive telecommunication device ETKG - as

already determined above - is generally only registered with a single multimedia message service center and short message service center respectively means that the connection for collecting the multimedia message MMN can only be set up with the multimedia message center stored in each instance in the telecommunication device.

The multimedia message itself does not necessarily always have to be located on a data server (storage unit) of the multimedia message service center, with which the telecommunication device collecting the multimedia message is registered, but it can be located anywhere else on any data server, for example a data server of another multimedia message service center. This occurs whenever the send telecommunication device STKG is registered with another multimedia message service center as the sender of the multimedia message MMN. This is shown in FIGURE 2.

Like FIGURE 1, FIGURE 2 shows the transmission of a multimedia message (MM) MMN in the fixed network FN from a send telecommunication device STKG to a receive telecommunication device ETKG, with, unlike in FIGURE 1, both devices being registered with different multimedia message service centers (MMSC) MMNDZ, MMNDZ', both of which are assigned to the fixed network. While the send telecommunication device STKG is registered with the multimedia message service center MMNDZ as in FIGURE 1, the receive telecommunication service center ETKG is registered with a further multimedia message service center MMNDZ'.

"Assigned" here means that the multimedia message service center MMNDZ, MMNDZ' is either a component of the fixed network FN or is arranged outside the fixed network FN. The

send telecommunication device STKG or receive telecommunication device ETKG is registered with the multimedia message service center MMNDZ or the further multimedia message service center MMNDZ' by programming a receive and send number for the service center into the respective device. This is either done by preconfiguring the respective telecommunication device in the factory or by manual configuration by the user of the device or by a specific configuration message, which is transmitted once during installation of the MMS service, e.g. via the SMS service from the multimedia message service center MMNDZ to the send telecommunication device STKG or from the further multimedia message service center MMNDZ' to the receive telecommunication device ETKG and is loaded dynamically with the data required for the installation of the MMS service.

Transmission of the multimedia message MMN again starts with the send telecommunication device STKG sending the multimedia message MMN intended for the receive telecommunication device ETKG via the fixed network FN to the multimedia message service center MMNDZ. However the multimedia message service center MMNDZ identifies that the addressed receive telecommunication device ETKG is not registered with it but with the further multimedia message service center MMNDZ'. It therefore sends information INF with the associated multimedia message MMN to the further multimedia message service center MMNDZ'. The further multimedia message service center MMNDZ' receiving this information and message again sends a notification message MN, to inform the receive telecommunication device ETKG that it has received the multimedia message MMN intended for the receive telecommunication device ETKG from the multimedia message service center MMNDZ, to a short message service center (SMSC)

KNDZ, that is assigned to the fixed network FN as the carrier of the information for the receive telecommunication device ETKG again like the two multimedia message service centers MMNDZ, MMNDZ'. The short message service center KNDZ again inserts the received notification message MN into a short message (SM) KN and sends this short message KN with the incorporated notification message MN in the known manner via the fixed network FN to the receive telecommunication device ETKG, which is again registered for this purpose with the short message service center KNDZ. Registration with the short message service center KNDZ takes place in the same way as registration with the further multimedia message service center MMNDZ'.

On receipt of the notification message MN the receive telecommunication device ETKG sets up a temporary telecommunication connection via the fixed network FN or a temporary Internet connection according to the TCP/IP protocol to the further multimedia message service center MMNDZ', with which it is registered as mentioned above, in order to collect the multimedia message MMN received and stored there for collection.

The description relating to FIGURE 2 shows that the two multimedia message service centers involved have their own mechanisms to transmit the multimedia message from one service center to the other service center. As the fixed network operators of such service centers are often in competition with each other or are perhaps even in a different country, there are frequently no corresponding bilateral agreements between the operators so that in such a case it might not be possible to transmit the multimedia message at all.

In the mobile radio area this problem is resolved by agreements between the individual operators of multimedia service centers.

The competition situation mentioned above currently exists in Germany with the SMS service in the fixed network area. To resolve the problems specified, the numbers of a plurality of short message service centers are stored in the telecommunication devices so that it is possible to receive short messages, even from [lacuna] at unlogged short message service centers. Receipt of a short message is generally not a problem, as the setting up of the connection is always prompted by the supplying short message service center.

The object of the invention is to specify a method and a multimedia message center for delivering a multimedia message to a telecommunication device configured as a multimedia message sink and a telecommunication device for accessing multimedia messages stored in at least one storage unit of a multimedia message service center, with which the multimedia messages transmitted in networks designed for the multimedia message service (MMS) can be delivered from any sender to any addressee and be received by said addressee irrespective of the communication between the networks and the infrastructure and topology of the respective network.

This object is achieved by the features specified in the characterizing part of Claim 1 based on the method defined in the preamble of Claim 1.

This object is achieved by the features specified in the characterizing part of Claim 15 based on the multimedia message center defined in the preamble of Claim 15.

This object is achieved by the features specified in the characterizing part of Claim 26 based on the telecommunication device defined in the preamble of Claim 26.

The idea underlying the invention is to send dial-in information to the telecommunication device directly or indirectly - e.g. via a short message center and/or a further multimedia message center - in addition to a notification message sent to the telecommunication device from a multimedia message center directly or indirectly - e.g. via a short message center and/or a further multimedia message center - based on a multimedia message stored in the multimedia message center and intended for a telecommunication device. This dial-in information informs the telecommunication device where it must dial in to, in order to be able to access the multimedia message intended for the telecommunication device. The telecommunication device then accesses the multimedia message service center or a storage unit assigned to the multimedia message service center according to the dial-in information, in order to collect the multimedia message.

This has the following advantages:

- (i) If the user is in another country, the dial-in number can also be a number in that country of the multimedia message service center available there. The dial-in number would then be a national number and this would save the user the charges for an international call.
- (ii) The multimedia message can remain with the sender's multimedia message service center until it is collected directly from there. This reduces the network load.
- (iii) The use of a dial-in number allows the user of a multimedia message service center to control utilization of

the multimedia message service center (see: development according to Claims 10 and 21), e.g. by means of an optional or alternative portal number.

(iv) The use of a dial-in number means that it is still possible, as before, to collect the multimedia message from the users "own" multimedia message service center.

(v) An agreement between the individual operators of multimedia message service centers is not required. Only an agreement to transmit the notification message is required instead. This is the case in particular when the SMS service is used for transmission (see: development according to Claims 3 to 5, 17 to 19 and 28, 29), as the SMS service has already been introduced in most countries.

According to the development of the invention in Claims 2, 16 and 27, it is advantageous for the dial-in number to be embedded in the structure of a notification message already provided - according to the standard for the transmission of multimedia messages in the fixed network. This is done by extending the notification message or so-called MMS notification to include an additional MMS information element, e.g. an X-MMS-Dial-In. This contains a unique identifier of the multimedia message service center according to the guidelines proposed by 3GPP in the MMS standard [email addresses (RFC 822) or multiple subscriber ISDN (E.164)]. The information element is optional, i.e. the user of the multimedia message service center can decide whether or not it is inserted into the MMS notification. The use of the dial-in numbers used is also optional, i.e. the multimedia message can be collected conventionally [see: advantage mentioned above (iv)]. This is essential in order not to impair the function of existing systems.

According to the development of the invention in Claims 7 to 9 and 31 to 33, it is advantageous if the dial-in number in the telecommunication device is verified for unwanted effects such as spam (unsolicited data) or 0190 numbers, by using a security protocol for example in the device (ad hoc log-on), using an exclusion list with excluded dial-in information, an authorization list with authorized dial-in information or a special list with generally applicable rules for permitted dial-in information or implementing a user-defined control system.

Further advantageous developments of the invention are specified in the other dependent claims.

An exemplary embodiment of the invention is described with reference to FIGURES 3 to 5, in which:

FIGURE 3 shows the transmission of multimedia messages in the fixed/mobile network from a sender (send device) to an addressee (receive device), when both devices are registered with different multimedia message service centers, involving both service centers, message storage unit and dial-in node of the collection multimedia message service center being integrated therein (first transmission scenario),

FIGURE 4 shows the transmission of multimedia messages in the fixed/mobile network from a sender (send device) to an addressee (receive device), when both devices are registered either with the same multimedia message service center or with different multimedia message service centers, involving only the collection multimedia message service center, the message storage unit being arranged outside and the dial-in node being

arranged inside the collection multimedia message service center (second transmission scenario),

FIGURE 5 shows the transmission of multimedia messages in the fixed/mobile network from a sender (send device) to an addressee (receive device), when both devices are registered either with the same multimedia message service center or with different multimedia message service centers, involving only the collection multimedia message service center, the message storage unit and the dial-in node being arranged outside the collection multimedia message service center (third transmission scenario).

FIGURE 3 shows a first transmission scenario based on FIGURE 2 with the transmission of a multimedia message (MM) MMN in a fixed/mobile network FMN from a send telecommunication device STKG to a receive telecommunication device ETKG, whereby, as in FIGURE 2, both devices are registered with different multimedia message service centers (MMSC) MMNDZ, MMNDZ', both assigned to the fixed/mobile network FMN. While the send telecommunication device STKG is registered with a multimedia message service center MMNDZ, as in FIGURES 1 and 2, the receive telecommunication device ETKG is registered with a multimedia message service center MMNDZ' as in FIGURE 2.

"Assigned" here again means that the multimedia message service center MMNDZ, MMNDZ' is either a component of the fixed/mobile network FMN or is arranged outside the fixed/mobile network FMN. The send telecommunication device STKG or receive telecommunication device ETKG is registered with the multimedia message service center MMNDZ or the further multimedia message service center MMNDZ' by

programming a receive and send number for the service center into the respective device. This is either done by preconfiguring the respective telecommunication device in the factory or by manual configuration by the user of the device or by a specific configuration message, which is transmitted once during installation of the MMS service, e.g. via the SMS service from the multimedia message service center MMNDZ to the send telecommunication device STKG or from the further multimedia message service center MMNDZ' to the receive telecommunication device ETKG and is loaded dynamically with the data required for the installation of the MMS service.

The send telecommunication device STKG can be configured differently according to the illustration in FIGURE 3, for example as a cordless telephone, a GSM/UMTS mobile telephone, a DECT cordless telephone comprising a cordless base station and at least one cordless mobile unit, a portable personal computer (notebook) or a service provider. This list is not exclusive but can be extended to include any such devices which are also able to send multimedia messages MMN via the fixed/mobile network FMN to the receive telecommunication device ETKG. The form in which the multimedia message MMN is sent is thereby irrelevant. It is therefore possible for example to send an email as a multimedia message MMN in addition to the known send forms.

Transmission of the multimedia message MMN again starts with the send telecommunication device STKG sending the multimedia message MMN intended for the receive telecommunication device ETKG via the fixed/mobile network FMN to the multimedia message service center MMNDZ. The multimedia message service center MMNDZ has a receive device EME for receiving the multimedia message MMN sent by the send telecommunication

device STKG. The receive device EME forwards the received multimedia message MMN to a central control unit ZST of the multimedia message service center MMNDZ, which controls the operational and functional processes in the multimedia message service center MMNDZ. Registration means RM, preferably configured as software, are contained in this central control unit ZST, which register the forwarded multimedia message MMN and forward it for temporary buffering to a storage unit HLS connected to the central control unit ZST and integrated in the multimedia message service center MMNDZ.

It is also verified in the central control unit ZST of the multimedia message service center MMNDZ using the forwarded multimedia message MMN whether or not the addressed receive telecommunication device ETKG is registered with the multimedia message service center MMNDZ. In the instance shown in FIGURE 3 the central control unit ZST establishes that the addressed receive telecommunication device ETKG is not registered with it but with a further multimedia message service center MMNDZ'. This verification is preferably also undertaken by the registration means RM.

On registration and storage of the multimedia message MMN, the receive telecommunication device ETKG is informed by the central control unit ZST of the multimedia message service center MMNDZ that a multimedia message intended for the receive telecommunication device ETKG is stored for collection in the multimedia message service center MMNDZ. To this end, in addition to the registration means RM, the central control unit ZST also has means, preferably also configured as software, to generate dial-in information EWIEM. The dial-in information generation means EWIEM generate dial-in information EWI, informing the receive telecommunication

device ETKG where it must dial in to, in order to be able to access and collect the stored multimedia message MMN. The central control unit ZST of the multimedia message service center MMNDZ also contains notification message generation means MNEM, which are not of relevance to the transmission scenario shown in FIGURE 3 and are therefore only shown with a broken line.

As the receive telecommunication device ETKG is not however registered with the multimedia message service center MMNDZ - as already mentioned - the said notification of where the receive telecommunication device ETKG must dial in to, in order to be able to access and collect the stored multimedia message, cannot take place directly from the multimedia message service center MMNDZ without support. In the scenario shown in FIGURE 3 the further multimedia message service center MMNDZ' for example, which is connected for this purpose to the multimedia message service center MMNDZ inside or outside the fixed/mobile network FMN, is able to do this. In order to inform the multimedia message service center MMNDZ' of the multimedia message MMN intended for the receive telecommunication device ETKG that has arrived and is stored at the multimedia message service center MMNDZ, multimedia message arrival information MMNEI is generated in the central control unit ZST and the dial-in information EWI is inserted therein.

The multimedia message arrival information MMNEI extended to include the dial-in information EWI is forwarded by the central control unit ZST to a send device SEE in the multimedia message service center MMNDZ and sent from there to the further multimedia message service center MMNDZ'.

The further multimedia message service center MMNDZ', which corresponds in structure to the multimedia message service center MMNDZ, has a further receive device EME' and a further send device SEE', both of which are connected to a further central control unit ZST', which contains further notification message generation means MNEM'. As the other devices - such as the storage unit and the dial-in node - and the other means assigned to the central control unit ZST' - such as the registration means and the dial-in information generation means - are not of relevance to further considerations, their existence is only shown with a broken line in FIGURE 3.

The further receive device EME' receives the multimedia message arrival information MMNEI extended to include the dial-in information EWI and forwards this to the further central control unit ZST'. The central control unit ZST' analyzes this information, identifies that a multimedia message intended and stored for the receive telecommunication device ETKG has arrived at the multimedia message service center MMNDZ and separates the transmitted dial-in information EWI. The further notification message generation means MNEM' in the central control unit ZST' also generate a notification message MN, the MMS notification introduced on implementation of the MMS service in the fixed network, to inform the receive telecommunication device ETKG of the presence of a multimedia message intended for the receive telecommunication device ETKG.

Both the notification message MN and the separated dial-in information EWI are forwarded to the further send device SEE' to inform the receive telecommunication device ETKG of the presence of a multimedia message intended for the receive telecommunication device ETKG.

This forwarding operation may be such that the notification message MN and the dial-in information are forwarded either separately or together in the form of a single message.

The latter of these two alternatives is the more advantageous, as on the one hand it reduces transmission cost in the multimedia message service center MMNDZ' and on the other hand common forwarding by embedding the dial-in information EWI in the notification message MN can be incorporated without any problem at all in an existing message structure predefined by a standard for the notification message MN or the MMS notification.

Incorporation into the message structure is preferably effected by extending the notification message MN, the so-called MMS notification to include an additional MMS information element, e.g. an X-MMS-Dial-In, which is available for dial-in information.

The notification message MN and dial-in information EWI forwarded to the send device SEE' are transmitted by the latter to the receive telecommunication device ETKG. This transmission can take place directly from the further multimedia message service center MMNDZ' or indirectly, i.e. via at least one further entity. For direct transmission of the notification message MN and dial-in information EWI, regardless of whether or not the receive telecommunication device ETKG is registered with the further multimedia message service center MMNDZ', a corresponding transmission protocol must be defined and specified between the multimedia message service center MMNDZ' and the receive telecommunication device ETKG, so that the receive telecommunication device ETKG can

identify the transmitted message and information as such and interpret them.

Indirect transmission, whereby a transmission service is generally used for transmission of the notification message MN and dial-in information EWI, is different. As already explained in the description of FIGURES 1 and 2, this is the short message or SMS service with an SMS-specific transmission protocol. With the SMS service, transmission of the message and information to be transmitted to the telecommunication device is effected by a corresponding short message service center irrespective of whether or not the receive telecommunication device ETKG is registered with the multimedia message service center MMNDZ'. Other services are also possible for the said purpose.

The SMS service is used again as in FIGURES 1 and 2 for transmission of the notification message MN and dial-in information in FIGURE 3. Therefore the further send device SEE' sends the notification message MN and the dial-in information EWI to a short message service center (SMSC) KNDZ, which is assigned again to the fixed/mobile network FMN as the carrier of information for the receive telecommunication device ETKG, again like the two multimedia message service centers MMNDZ, MMNDZ'. The short message service center KNDZ inserts the received notification message MN and dial-in information EWI into a short message (SM) KN configured as a short message service message and sends this short message KN with the incorporated notification message MN and dial-in information EWI in the known manner via the fixed/mobile network FMN to the receive telecommunication device ETKG connected to the short message service center KNDZ, with which it is again registered for this purpose. Registration with the

short message service center KNDZ takes place in the same manner as registration of the receive telecommunication device ETKG with the further multimedia message service center MMNDZ' or registration of the send telecommunication device STKG with the multimedia message service center MMNDZ.

Instead of incorporating the notification message MN and dial-in information EWI directly in the short message KN, it is also possible as an alternative for the notification message MN and dial-in information EWI to be incorporated indirectly in the short message KN, by first incorporating it in a wireless application protocol push message and then incorporating the wireless application protocol push message in the short message KN.

So that the notification message MN and dial-in information EWI can be received by the receive telecommunication device ETKG, this latter has a receiver EM, which is connected to a central control device ZSTE, which controls the operational and functional processes in the receive telecommunication device ETKG. The notification message MN and dial-in information ultimately pass via this connection into the central control device ZSTE.

The central control device ZSTE contains identification means EKM, preferably configured as software, which identify the received dial-in information EWI forwarded to the central control device ZSTE. Once the dial-in information EWI in particular has been identified and the central control device ZSTE therefore knows which multimedia message service center the receive telecommunication center ETKG must dial in to, in order to be able to access and collect the stored multimedia message MMN, the receive telecommunication device ETKG sets up

a temporary telecommunication connection according to the dial-in information via the fixed/mobile network FMN or a temporary Internet connection according to the TCP/IP protocol to the multimedia message service center corresponding to the dial-in information, the multimedia message service center MMNDZ, in order to collect the multimedia message MMN that has arrived there and is stored there for collection. The dial-in information EWI is therefore either a telephone number or a uniform resource locator (URL) to specify an address in the World Wide Web (Internet). The dial-in information EWI can alternatively also contain other comparable location data or information.

For collection in this manner the receive telecommunication device ETKG has a collection device AHE for collecting messages and/or information, connected on the one hand to the central control device ZSTE and on the other hand for the temporary telecommunication connection or Internet connection to a dial-in node EWK of the multimedia message service center MMNDZ, so that the central control device ZSTE can access the multimedia message service center MMNDZ using the identified dial-in information EWI according to the control path (i) in FIGURE 3 via the collection device AHE and collect the multimedia message.

The dial-in node EWK of the multimedia message service center MMNDZ is connected to the central control unit ZST and from the point of view of the multimedia message service center MMNDZ forms the interface or gateway to the receive telecommunication device ETKG, via which the receive telecommunication device ETKG requests collection and the multimedia message MMN is output as prompted by the central control unit ZST.

To protect the user of the receive telecommunication device ETKG against unwanted effects, such as spam (unsolicited data), 0190 numbers, etc., the central control device ZSTE contains verification means ÜPM, preferably also configured as software. The verification means ÜPM and the identification means EKM form a functional unit such that after identification of the dial-in information EWI, the dial-in information EWI is verified before the central control device ZSTE can access the multimedia message service center MMNDZ according to the control path (ii) in FIGURE 3 as a function of this verification.

Verification by the verification means ÜPM preferably takes place according to an exclusion list with excluded dial-in information, an authorization list with authorized dial-in information or a special list with generally applicable rules for permitted dial-in information. To this end the central control device ZSTE has a storage device SPE, in which the said lists are stored. Alternatively the storage device SPE can also be a separate device, which is connected to the central control device ZSTE.

Another option for verification by the verification means ÜPM is a user-defined controller. To this end the central control device ZSTE is connected to a keyboard TA, electro-acoustic converters EAW and a display device AE. A dialog takes place with the user of the telecommunication device via these devices or components of the telecommunication device, such that the dial-in information EWI is displayed acoustically or visually to the user and the user must then confirm the displayed dial-in information EWI. Confirmation can preferably

take place by keyboard or soft-key input or even by voice input.

Another option is to use a security protocol (ad hoc log-on) in the device.

FIGURE 4 shows a second transmission scenario with the transmission of a multimedia message (MM) MMN in a fixed/mobile network FMN from a send telecommunication device STKG to a receive telecommunication device ETKG, both devices being registered either with different multimedia message service centers MMNDZ, MMNDZ' as in the scenario in FIGURE 3 or with one and the same multimedia message service center MMNDZ, e.g. the multimedia message service center MMNDZ or the further multimedia message service center MMNDZ'. The multimedia message service center or multimedia message service centers is/are again assigned to the fixed/mobile network FMN. While the send telecommunication device STKG is registered with the multimedia message service center MMNDZ as in FIGURES 1 and 2, the receive telecommunication center ETKG can now be registered with the further multimedia message service center MMNDZ' as in FIGURE 3 or with the multimedia message service center MMNDZ like the send telecommunication device STKG according to the diagram in FIGURE 4.

"Assigned" in respect of the fixed/mobile network FMN means that the multimedia message service center MMNDZ is either a component of the fixed/mobile network FMN or is arranged outside the fixed/mobile network FMN. The send telecommunication device STKG or receive telecommunication device ETKG is again registered with the multimedia message service center MMNDZ by programming a receive and send number for the service center into the respective device. This is

again done by preconfiguring the respective telecommunication device in the factory or by manual configuration by the user of the device or by a specific configuration message, which is transmitted once during installation of the MMS service, e.g. via the SMS service from the multimedia message service center MMNDZ to the send telecommunication device STKG and to the receive telecommunication device ETKG and is loaded dynamically with the data required for the installation of the MMS service.

The send telecommunication device can again be configured differently as in FIGURE 3, for example as a cordless telephone, a GSM/UMTS mobile telephone, a DECT cordless telephone comprising a cordless base station and at least one cordless mobile unit, a portable personal computer (notebook) or a service provider. This list is not exclusive but can be extended to include any such devices which are also able to send multimedia messages MMN via the fixed/mobile network FMN to the receive telecommunication device ETKG. The form in which the multimedia message MMN is sent is thereby irrelevant. It is therefore possible for example to send an email as a multimedia message MMN in addition to the known send forms.

Transmission of the multimedia message MMN starts with the send telecommunication device STKG sending the multimedia message MMN intended for the receive telecommunication device ETKG via the fixed/mobile network FMN to the multimedia message service center MMNDZ. The multimedia message service center MMNDZ again has a receive device EME for receiving the multimedia message MMN sent by the send telecommunication device STKG. The receive device EME forwards the received multimedia message MMN again to a central control unit ZST of

the multimedia message service center MMNDZ, which controls the operational and functional processes in the multimedia message service center MMNDZ. Registration means RM, preferably configured as software, are again contained in this central control unit ZST, which register the forwarded multimedia message MMN and forward it for temporary buffering to one of a plurality of storage unit HLS connected to the central control unit ZST and arranged outside the multimedia message service center MMNDZ.

On registration and storage of the multimedia message MMN, the receive telecommunication device ETKG is informed by the central control unit ZST of the multimedia message service center MMNDZ that a multimedia message intended for the receive telecommunication device ETKG is stored for collection in the multimedia message service center MMNDZ. To this end, in addition to the registration means RM, the central control unit ZST has means, preferably also configured as software, to generate notification messages MNEM and means to generate dial-in information EWIEM. The notification message generation means MNEM generate a notification message MN, the MMS notification introduced on implementation of the MMS service in the fixed network, to inform the receive telecommunication device ETKG of the presence of a multimedia message intended for the receive telecommunication device ETKG, while the dial-in information generation means EWIEM generate dial-in information, informing the receive telecommunication device ETKG where it must dial in to, in order to be able to access and collect the stored multimedia message MMN.

Both the notification message MN and the dial-in information EWI are forwarded for this purpose by the central control unit

ZST to a send device SEE in the multimedia message service center MMNDZ. This forwarding operation may be such that the notification message MN and the dial-in information are forwarded either separately or together in the form of a single message.

This forwarding operation may be such that the notification message MN and the dial-in information EWI are forwarded either separately or together in the form of a single message.

The latter of these two alternatives is the more advantageous, as on the one hand it reduces transmission cost in the multimedia message service center MMNDZ and on the other hand common forwarding by embedding the dial-in information EWI in the notification message MN can be incorporated without any problem at all in an existing message structure predefined by a standard for the notification message MN or the MMS notification.

Incorporation in the message structure is preferably effected by extending the notification message MN, the so-called MMS notification to include an additional MMS information element, e.g. an X-MMS-Dial-In, which is available for dial-in information.

The notification message MN and dial-in information EWI forwarded to the send device SEE are transmitted by the latter to the receive telecommunication device ETKG. This transmission can take place directly from the multimedia message service center MMNDZ or indirectly, i.e. via at least one further entity. For direct transmission of the notification message MN and dial-in information EWI, regardless of whether or not the receive telecommunication

device ETKG is registered with the multimedia message service center MMNDZ, a corresponding transmission protocol must be defined and specified between the multimedia message service center MMNDZ and the receive telecommunication device ETKG, so that the receive telecommunication device ETKG can identify the transmitted message and information as such and interpret them.

Indirect transmission, whereby a transmission service is generally used for transmission of the notification message MN and dial-in information EWI, is different. As already explained in the description of FIGURES 1 and 2, this is a short message or SMS service with an SMS-specific transmission protocol. With the SMS service, transmission of the message and information to be transmitted to the telecommunication device is effected by a corresponding short message service center irrespective of whether or not the receive telecommunication device ETKG is registered with the multimedia message service center MMNDZ. Other services are also possible for the said purpose.

The SMS service is used again as in FIGURES 1 to 3 for transmission of the notification message MN and dial-in information EWI in FIGURE 4. Therefore the further send device SEE sends the notification message MN and the dial-in information EWI to a short message service center (SMSC) KNDZ, which is again assigned to the fixed/mobile network FMN as the carrier of information for the receive telecommunication device ETKG, like the multimedia message service center MMNDZ. The short message service center KNDZ inserts the received notification message MN and dial-in information EWI into a short message (SM) KN configured as a short message service message and sends this short message KN with the incorporated

notification message MN and dial-in information EWI in the known manner via the fixed/mobile network FMN to the receive telecommunication device ETKG connected to the short message service center KNDZ, with which it is again registered for this purpose. Registration with the short message service center KNDZ takes place in the same manner as registration of the receive telecommunication device ETKG and the send telecommunication device STKG with the multimedia message service center MMNDZ.

Instead of incorporating the notification message MN and dial-in information EWI directly in the short message KN, it is also possible as an alternative for the notification message MN and dial-in information EWI to be incorporated indirectly in the short message KN, by first incorporating it in a wireless application protocol push message and then incorporating the wireless application protocol push message in the short message KN.

So that the notification message MN and dial-in information EWI can be received by the receive telecommunication device ETKG, this latter has a receiver EM, which is connected to a central control device ZSTE, which again controls the operational and functional processes in the receive telecommunication device ETKG. The notification message MN and dial-in information ultimately pass via this connection into the central control device ZSTE.

The central control device ZSTE contains identification means EKM, preferably configured as software, which identify the received dial-in information EWI forwarded to the central control device ZSTE. Once the dial-in information EWI in particular has been identified and the central control device

ZSTE therefore knows which multimedia message service center the receive telecommunication center ETKG must dial in to, in order to be able to access and collect the stored multimedia message MMN, the receive telecommunication device ETKG again sets up a temporary telecommunication connection according to the dial-in information EWI via the fixed/mobile network FMN or a temporary Internet connection according to the TCP/IP protocol to the multimedia message service center corresponding to the dial-in information, the multimedia message service center MMNDZ, in order to collect the multimedia message MMN that has arrived and is stored there for collection. The dial-in information EWI is again therefore either a telephone number or a uniform resource locator (URL) to specify an address in the World Wide Web (Internet). The dial-in information EWI can again alternatively also contain other comparable location data or information.

For collection in this manner the receive telecommunication device ETKG has a collection device AHE for collecting messages and/or information, connected on the one hand to the central control device ZSTE and on the other hand for the temporary telecommunication connection or Internet connection to a dial-in node EWK of the multimedia message service center MMNDZ, so that the central control device ZSTE can access the multimedia message service center MMNDZ using the identified dial-in information EWI according to the control path (i) in FIGURE 4 via the collection device AHE and collect the multimedia message.

The dial-in node EWK of the multimedia message service center MMNDZ is again connected to the central control unit ZST and from the point of view of the multimedia message service center MMNDZ forms the interface or gateway to the receive

telecommunication device ETKG, via which the receive telecommunication device ETKG requests collection and the multimedia message MMN is output as prompted by the central control unit ZST.

Because the multimedia message MMN with the dial-in information EWI can be collected by the receive telecommunication device ETKG from the multimedia message service center MMNDZ and the central control unit ZST of the multimedia message service center MMNDZ is connected both to the dial-in node EWK and the individual storage units HLS, the operator of the multimedia message service center MMNDZ is able to control utilization of the storage units HLS in respect of temporary buffering (storage) of multimedia messages using the dial-in information EWI generated in the multimedia message service center MMNDZ.

A possible control scenario is such that the central control unit ZST stores multimedia messages at a first storage unit HLS1 and later collects them from there for first to third dial-in information EWI1 ... EWI3, stores multimedia messages at a second storage unit HLS2 and later collects them from there for fourth to sixth dial-in information EWI4 ... EWI6 and stores multimedia messages at a third storage unit HLS3 and later collects them from there for seventh to ninth dial-in information EWI7 ... EWI9. However this means that the dial-in node EWK must accept all nine items of dial-in information and cannot reject them.

It is evident that the proposed control scenario can on the one hand be modified in any manner and on the other hand can be extended in any manner in respect of the number of storage units and items of dial-in information.

To protect the user of the receive telecommunication device ETKG against unwanted effects, such as spam (unsolicited data), 0190 numbers, etc., the central control device ZSTE again contains verification means ÜPM, preferably also configured as software. The verification means ÜPM and the identification means EKM again form a functional unit such that after identification of the dial-in information EWI, the dial-in information EWI is verified before the central control device ZSTE can access the multimedia message service center MMNDZ according to the control path (ii) in FIGURE 4 as a function of this verification.

Verification by the verification means ÜPM preferably takes place according to an exclusion list with excluded dial-in information, an authorization list with authorized dial-in information or a special list with generally applicable rules for permitted dial-in information. To this end the central control device ZSTE again has a storage device SPE, in which the said lists are stored. Alternatively the storage device SPE can also be a separate device, which is connected to the central control device ZSTE.

Another option for verification by the verification means ÜPM is again a user-defined controller. To this end the central control device ZSTE is connected to a keyboard TA, electro-acoustic converters EAW and a display device AE. A dialog again takes place with the user of the telecommunication device via these devices or components of the telecommunication device, such that the dial-in information EWI is displayed acoustically or visually to the user and the user must then confirm the displayed dial-in information EWI.

Confirmation can preferably take place by keyboard or soft-key input or even by voice input.

Another option is to use a security protocol (ad hoc log-on) in the device.

FIGURE 5 shows a third transmission scenario with the transmission of a multimedia message (MM) MMN in a fixed/mobile network FMN from a send telecommunication device STKG to a receive telecommunication device ETKG, both devices being registered either with different multimedia message service centers (MMSC) MMNDZ, MMNDZ' as in the scenario in FIGURE 3 or with one and the same multimedia message service center MMNDZ, e.g. the multimedia message service center MMNDZ or the further multimedia message service center MMNDZ'. The multimedia message service center or multimedia message service centers are again assigned to the fixed/mobile network FMN. While the send telecommunication device STKG is registered with the multimedia message service center MMNDZ as in FIGURES 1 and 2, the receive telecommunication center ETKG can now be registered with the further multimedia message service center MMNDZ' as in FIGURE 3 or with the multimedia message service center MMNDZ like the send telecommunication device STKG according to the diagram in FIGURES 4 and 5.

The third transmission scenario shown in FIGURE 5 differs from the second transmission scenario shown in FIGURE 4 only in that a dial-in node EWK is assigned to each storage unit HLS, each dial-in node EWK is connected to the central control unit ZST and the dial-in nodes EWK, like the storage units HLS, are arranged outside the multimedia message service center MMNDZ. There will be no detailed description of FIGURE 5 here for

this reason. The descriptions below therefore only relate to the specified differences between FIGURES 4 and 5.

To collect [lacuna] at the multimedia message service center MMNDZ, the receive telecommunication device ETKG again has the collection device AHE for collecting messages and/or information, connected on the one hand to the central control device ZSTE of the receive telecommunication device ETKG and on the other hand for the temporary telecommunication connection or Internet connection to each dial-in node EWK of the multimedia message service center MMNDZ, so that the central control device ZSTE can access the multimedia message service center MMNDZ using the identified dial-in information EWI according to the control path (i) in FIGURE 5 via the collection device and collect the multimedia message.

Each dial-in node EWK of the multimedia message service center MMNDZ is connected, as mentioned above, to the central control unit ZST and from the point of view of the multimedia message service center MMNDZ forms an interface or gateway respectively to the receive telecommunication device ETKG, via which the receive telecommunication device ETKG requests collection and the multimedia message MMN is output as prompted by the central control unit ZST.

Unlike the scenario in FIGURE 4, with the scenario according to FIGURE 5 it is also possible with a corresponding configuration of the respective dial-in node for both the request for collection and the outputting of the multimedia message to be processed without intervention by the central control unit ZST (no prompting by the central control unit ZST), irrespective of this, solely by the respective dial-in node EWK. This means that the receive telecommunication device

ETKG uses the dial-in information EWI to collect the multimedia message MMN not from the multimedia message service center MMNDZ but directly from the storage unit HLS assigned to the multimedia message service center MMNDZ.

Because the multimedia message MMN with the dial-in information EWI can be collected by the receive telecommunication device ETKG from the multimedia message service center MMNDZ or from the storage unit assigned to the multimedia message service center MMNDZ and the central control unit ZST of the multimedia message service center MMNDZ is connected both to the dial-in node EWK and the individual storage units HLS, the operator of the multimedia message service center MMNDZ is able to control utilization of the storage units HLS in respect of the temporary buffering (storage) of multimedia messages using the dial-in information EWI generated in the multimedia message service center MMNDZ.

A possible control scenario is such that the central control unit ZST stores multimedia messages at a first storage unit HLS\_Munich for first dial-in information EWI\_089, stores multimedia messages at a second storage unit HLS\_Hamburg for second dial-in information EWI\_040 and stores multimedia messages at a third storage unit HLS\_Berlin for third dial-in information EWI\_030 and must then however determine that the first storage unit HLS\_Munich is utilized to the maximum and cannot therefore take any new multimedia messages. Because the dial-in information is assigned in the multimedia message service center MMNDZ, the operator of the multimedia message service center MMNDZ is now able to respond flexibly to this situation. For multimedia messages which the operator would normally store at the first storage unit HLS\_Munich but cannot now do because of the maximum utilization of the first storage

unit HLS\_Munich, said operator can now change to another storage unit, e.g. the third storage unit HLS\_Berlin, because this is not yet fully utilized. The operator therefore assigns the third dial-in information EWI\_030 for these multimedia messages instead of the first dial-in information EWI\_089. It is evident that the proposed control scenario can on the one hand be changed in any manner and on the other hand can be extended in any manner in respect of the number of storage units and dial-in information elements.